Researchers take step toward understanding how multiple myeloma takes hold

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Israeli scientists are moving closer to understanding how multiple myeloma takes hold in bone marrow by identifying what they believe are the mechanisms used by cancer cells to take over. In particular, they have found that the cancer cells communicate with healthy cells, changing the way proteins are made to make the bone marrow environment more favorable to cancer cells. They do this by manipulating an early phase in the process (protein translation initiation). The report appears in the October 2016 issue of the *Journal of Leukocyte Biology*.

"Our research should help identify therapeutic targets that may be used to minimize the collateral damage," said Mahmoud Dabbah, M.Sc., a researcher involved in the work. "The identification of the translation initiation phase as a dialogue platform affords a potential new therapeutic target to be explored."

Mesenchymal stem cells in the bone marrow are often altered in multiple myeloma favoring tumor progression, but the mechanisms are poorly understood. To shed light on this process, researchers used multiple myeloma cell lines and cultured the cells with normal donor mesenchymal stem cells. Changes in phenotype and translation initiation were found in mesenchymal stem cells following co-culture with the multiple myeloma cells suggesting an ability of tumor cells to modify the environment around themselves in the bone marrow.

"These studies delve into the crosstalk between tumors and the

surrounding microenvironment for multiple myeloma and reveal a new type of influence by tumors on normal cells," said E. John Wherry, Ph.D., Deputy Editor of the *Journal of Leukocyte Biology*. "The finding that protein translation in normal cells in subverted by tumor cells to create a better growth environment for cancer cells should reveal new opportunities for therapeutics aimed at stopping this process."

More information: M. Dabbah et al, Multiple myeloma cells promote migration of bone marrow mesenchymal stem cells by altering their translation initiation, *Journal of Leukocyte Biology* (2016). DOI: 10.1189/jlb.3A1115-510RR

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